

PCT

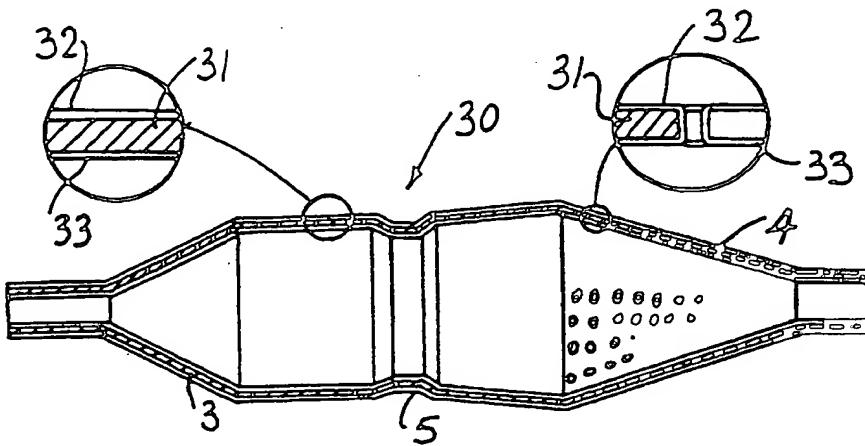
WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|  |  |  |  |
|--|--|--|--|
| (51) International Patent Classification 7 :<br><br>A61F 2/01  |  | A1   | (11) International Publication Number: <b>WO 00/67668</b>        |
|  |  |  | (43) International Publication Date: 16 November 2000 (16.11.00) |
| (21) International Application Number: PCT/IE00/00053  |  | (81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DE (Utility model), DK, DK (Utility model), DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). |  |
| (22) International Filing Date: 8 May 2000 (08.05.00)  |  |  |  |
| (30) Priority Data:<br>PCT/IE99/00036 7 May 1999 (07.05.99) IB<br>PCT/IE99/00033 7 May 1999 (07.05.99) IB  |  |  |  |
| (71) Applicant (for all designated States except US): SALVIAC LIMITED [IE/IE]; 39-40 Upper Mount Street, Dublin 2 (IE).  |  |  |  |
| (72) Inventors; and  |  |  |  |
| (75) Inventors/Applicants (for US only): VALE, David [IE/IE]; 26 The Stiles Road, Clontarf, Dublin 3 (IE). BRADY, Eamon [IE/IE]; 12 Karol Avenue, Elphin, County Roscommon (IE). |  |  |  |
| (74) Agents: O'BRIEN, John, A. et al.; John A. O'Brien & Associates, Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, County Dublin (IE).                            |  |  |  |

(54) Title: IMPROVED FILTER ELEMENT FOR EMBOLIC PROTECTION DEVICE



(57) Abstract

A collapsible filter element (105) for a transcatheter embolic protection device (100) comprises a collapsible filter body (30) which is movable between a collapsed stored position for movement through a vascular system and an expanded position for extension across a blood vessel such that blood passing through the blood vessel is delivered through the filter element (105). A proximal inlet portion of the filter body (30) has one or more inlet openings (117) sized to allow blood and embolic material enter the filter body (30) and a distal outlet portion of the filter body (30) has a plurality of outlet openings (119) sized to allow through-passage of blood, but to retain embolic material within the filter body (30). The filter body (30) is at least partially of laminate construction comprising a membrane (31) coated with a coating (32, 33) which is biocompatible, the thickness of the coating (32, 33) being from 4% to 40% of the thickness of the membrane (31). The coating (32, 33) may be of hydrophilic material. To facilitate retrieval of captured embolic material the distal portion and/or an intermediate portion of the filter membrane (31) may be stretchable. The filter body (30) may have regions of varying hardness or stiffness.